

AMENDMENT TO THE CLAIMS

Please cancel claims 1-10, 17-18 and 23-40 and add claims 41-43.

This listing of claims will replace all prior versions, and listings, of claims in the application. The following listing provides the amended claims with deleted material crossed out and added material underlined to show the changes made.

1. (Canceled).
2. (Canceled).
3. (Canceled).
4. (Canceled).
5. (Canceled).
6. (Canceled).
7. (Canceled).
8. (Canceled).
9. (Canceled).
10. (Canceled).

11. (Currently Amended) A method of encoding a block of data having n-dimensions received from an input source, the block containing a plurality of information bits, the method comprising the steps of:
- a. —receiving a row of the block and immediately outputting the row;
 - b. —encoding the information bits in the row by an X-axis encoder, thereby forming a first set of encoded data including a first parity data, wherein the first set of encoded data is generated according to a first encoding scheme and stored in a row encode storage array having a plurality of row array bits;
 - c. —outputting the first set of encoded data;
resetting the row encode storage array after the first set of encoded data is output, wherein all row array bits are set to zero;
 - d. —encoding the information bits in a column by a Y-axis encoder according to a second encoding scheme, thereby forming a second set of encoded data including a second parity data, wherein the second set of encoded data is generated and iteratively updated according to the information bits in the row, and the Y-axis encoder is separate from the X-axis encoder;
 - e. —hyper-diagonally encoding the information bits in the block by a hyper-axis encoder according to a parity type encoding scheme, thereby forming a hyper set of encoded data comprising a plurality of hyper parity data values, each hyper parity data value is generated according to:
 - the information bits in the row,
 - the information bits in the column,
 - the first parity data, and
 - the second parity data,wherein at least one information bit in the row is located in a different row for the hyper set of encoded data than in the block, and the hyper-axis encoder is separate from the X-axis encoder and the Y-axis encoder;
 - f. —outputting the second set of encoded data after all the information bits and all subsequent first sets of encoded data are outputted; and
 - g. —outputting the hyper set of encoded data.

12. (Previously Presented) The method of claim 11, wherein the second set of encoded data is encoded according to the first encoding scheme.
13. (Previously Presented) The method of claim 11, wherein the second set of encoded data is encoded according to the second encoding scheme.
14. (Original) The method according to claim 11 wherein the block of data is three dimensional, the block of data including a plane of encoded bits, wherein the plane is orthogonal to the row and the column.
15. (Original) The method according to claim 14 further comprising the steps of:
 - a. encoding the information bits in the plane according to a third encoding scheme, wherein a third set of encoded data is generated and iteratively updated corresponding to the information bits in the row; and
 - b. outputting the third set encoded data after all subsequent second sets of encoded data are outputted.
16. (Currently Amended) The method according to claim 14 wherein the hyper set of encoded data is stored in a hyper parity array, and the hyper parity array is a hyper parity plane.
17. (Canceled).
18. (Canceled).
19. (Original) The method according to claim 11 wherein the second set of encoded data is stored in a column encode storage array.
20. (Original) The method according to claim 11 wherein the hyper set of encoded data is stored in a hyper parity array, wherein the hyper parity array includes a plurality of parity array bits.

21. (Previously Presented) The method according to claim 20 wherein the step of hyper-diagonally encoding further comprises:
 - a. updating the hyper parity array by iteratively encoding the parity array for the information bits and the first set and the second set of encoded data for each row; and
 - b. rotating the hyper parity array, wherein rotating the hyper parity array comprises relocating a plurality of the parity array bits in the array.
22. (Previously Presented) The method according to claim 20 further comprising the step of initializing the hyper parity array such that all parity array bits are set to zero, wherein the step of initializing is executed before the information bits are encoded.
23. (Canceled).
24. (Canceled).
25. (Canceled).
26. (Canceled).
27. (Canceled).
28. (Canceled).
29. (Canceled).
30. (Canceled).
31. (Canceled).
32. (Canceled).

- 33. (Canceled).
- 34. (Canceled).
- 35. (Canceled).
- 36. (Canceled).
- 37. (Canceled).
- 38. (Canceled).
- 39. (Canceled).
- 40. (Canceled).
- 41. (New) The method of claim 11, wherein the X-axis encoder stores only the first parity data.
- 42. (New) The method of claim 19, wherein the Y-axis encoder stores only the second parity data.
- 43. (New) The method of claim 20, wherein the hyper-axis encoder stores only the hyper parity data values.